

Claims

1. In a chuck device, including a base member and at least one claw member movably mounted on said base member, for chucking a workpiece or a tool by moving said claw member,

a chuck device comprising:

an input member for applying a rotational drive force;

a gear mechanism using a rotational drive force applied through said input member to drive a screw shaft member in an axial direction; and

a conversion mechanism redirecting an axial drive force transferred through said screw shaft member and driving a claw member.

2. In a chuck device, including a base member and at least one claw member movably mounted on said base member, for chucking a workpiece or a tool by moving said claw member,

a chuck device comprising:

an input member for applying a rotational drive force;

a worm gear mechanism slowing down a rotational drive force applied through said input member;

a second gear mechanism using a rotational drive force transferred from said worm gear mechanism to drive a screw shaft member in an axial direction; and

a conversion mechanism redirecting an axial drive force transferred through said screw shaft member and driving a claw member.

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3. A chuck device as described in claim 2 wherein:

said worm gear mechanism includes a worm gear rotating integrally with said input member and a worm wheel meshing with said worm gear; and

said second gear mechanism includes a threaded hole formed concentrically with a center of a worm wheel and said screw shaft member screwed into said threaded hole.

4. A chuck device as described in claim 2 wherein said conversion mechanism includes: a conversion member secured to said screw shaft member and not rotating relative to said base member; a sloped engagement groove formed on said conversion member and sloped relative to a direction of motion of said claw member; and an engagement section disposed on said claw member and slidably engaging with said sloped engagement groove.

5. A chuck device as described in any one of claim 2 through claim 4 wherein:

a pair of claw members are disposed facing each other;

legs of said claw members are slidably engaged with a shared engagement groove formed on said base member; and

said conversion mechanism is formed to move said pair of claw members symmetrically.

6. A chuck device as described in any one of claim 2 through claim 5 wherein:

said claw member is mounted on an upper surface of said base member; and

said worm gear mechanism and said second gear mechanism are mounted in said base member.

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7. A chuck device as described in any one of claim 2 through claim 6 wherein rotational drive force is applied manually to said input member.

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